Patent Claims

1. Flow machine with a compressor (2) and at least one turbine (5), and in which a first booster stage (3) is arranged in an intake duct (1) of the compressor (2),
wherein
a second booster stage (9) is arranged in an exhaust gas duct (8), which connects to the turbine (5) directly or via intermediate elements (7), or in a bypass (duct) (10) of the exhaust gas duct (8).

2. Flow machine with a compressor (2) with an intake duct (1) and at least one turbine (5), wherein a first booster stage (3) is arranged in a bypass (duct) (10) tothe intake duct (1), and a second booster stage (9) is arranged in an exhaust gas duct (8) which connects to the turbine (5) directly or via intermediate elements (7), or in a bypass (duct) (10) of the exhaust gas duct (8).

3. Flow machine according to claim 1 or 2, wherein the first booster stage (3) and/or the second booster stage (9) consist(s) of one or more parallel or series arranged booster elements (12) with fans (14).

4. Flow machine according to claim 3, wherein the booster elements (12) have drives (13) which are designed as low voltage drives.

5. Flow machine according to claim 3 or 4, wherein the fans (14) of the booster elements (12) are driven by a speed-controlled drive (13).

6. Flow machine according to one of claims 3-5, wherein the fans (14) of the booster elements (12) are equipped with adjustable fan blades (16).

7. Flow machine according to one of claims 1-6, wherein a heat recovery system, particularly a waste heat boiler (7), is provided as an intermediate element between the exhaust

gas duct (8) and the turbine (5).

8. Flow machine according to one of claims 1-7, wherein the first booster stage (3) and the second booster stage (9) are designed for optimizing the whole intake region as far as the inlet of the intake air into the compressor, or the whole exhaust gas region from the outlet of the exhaust gases from the turbine, both with regard to the constructional embodiment and with regard to flow technology.

9. Flow machine according to one of claims 1-8, wherein the height of the exhaust gas duct (8) is reduced, relative to a flow machine without a second booster stage (9), the second booster stage (9) being designed for the compensation of the varied upward drive conditions from the reduction of the reduction of the height of the exhaust gas duct (8).

10. Process for the operation of a flow machine according to one or more of the foregoing claims, in which the first booster stage (3) and the second booster stage (9) are operated, individually or in combination, in dependence on the specific operating conditions.

11. Process according to claim 10, wherein the fist booster stage (3) and/or the second (9) is/are operated when there is a high power requirement or when the provision of reserve power is necessary.

12. Process according to claim 10, wherein the fist booster stage (3) and/or the second (9) is/are operated when it is necessary to operate the flow machine for the purpose of frequency regulation.

13. Process according to claim 10, wherein before the starting, and/or during the starting, of the flow machine, the first booster stage (3) and/or the second booster stage (9) is/are driven for the purpose of flushing the plant.

14. Process according to claim 10, wherein during the stopping, and/or after the stopping, of the flow machine, the first booster stage (3) and/or the second booster stage (9) is/are operated for the purpose of cooling the plant.

15. Process according to claim 10, wherein during the starting, or during a power increase, of the flow machine, the first booster stage (3) and/or the second booster stage (9) is/are operated for the purpose of implementing an increased power gradient of the plant.

16. Process according to claim 10, wherein during the starting, or during a power increase, of the flow machine, the first booster stage (3) and/or the second booster stage (9) is/are operated for the purpose of a smooth operation of the plant at the same power gradient as without operation of the booster stages (3, 9).

17. Process according to claim 10, wherein in operation of the first booster stage (3) and/or the second booster stage (9), the firing power is reduced in order to provide the same output power of the flow machine as without the operation of the first booster stage (3) and/or of the second booster stage (9).

18. Process according to claim 10, wherein when it is necessary to improve the emission conditions, the second booster stage (9) is operated for an increase of the outlet speed and hence of the upward drive of the exhaust gases flowing from the exhaust gas duct (8).